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REMARKS

Claims 1-8 and 17-28 are all the claims presently pending the application. Claims 1-8 have been amended to more particularly define the invention. Claims 9-16 have been canceled and claims 17-28 have been added.

It is noted that the claim amendments are made only for more particularly pointing out the invention, and not for distinguishing the invention over the prior art, narrowing the claims or for any statutory requirements of patentability. Further, Applicant specifically states that no amendment to any claim herein should be construed as a disclaimer of any interest in or right to an equivalent of any element or feature of the amended claim.

Claims 1-8 stand rejected under U.S.C. § 102 (e) as being allegedly anticipated by Tanbe, et al. (US 6,469,320)

This rejection is respectfully traversed in the following discussion.

I. THE CLAIMED INVENTION

The claimed invention (e.g., as recited in claim 1) is directed to a semiconductor light emitting element, including a crystal growth substrate, an epitaxial lateral overgrowth (ELO) mask formed on the substrate, and a semiconductor crystal formed on said substrate and the ELO mask.

Importantly, at least part of a sidewall of the ELO mask includes an inclined plane that is inclined to the crystal growth surface such that the semiconductor crystal to be formed on the ELO mask substantially has no void.

Conventional light-emitting elements may include an ELO mask formed on a crystal growth surface. However, voids and dislocations are typically formed in a semiconductor crystal layer formed on the ELO mask (Application at Figure 1; page 3, lines 21-27).

In the claimed invention, on the other hand, at least part of a sidewall of the ELO mask includes an inclined plane that is inclined to the crystal growth surface of the semiconductor crystal (Application at Figures 2A-2B). This helps to inhibit (e.g., prevent) the formation of voids in the semiconductor crystal which is formed on the ELO mask (Application at page 9, line 4-page 5, line 2).

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II. TANABE

The Examiner alleges that Tanabe teaches the claimed invention of claims 1-8. Applicant submits, however, that there are elements of the claimed invention which are neither taught nor suggested by Tanabe.

Tanabe discloses a semiconductor light emitting device having a GaN layer which is selectively grown in the lateral direction from the opening parts 3a of a mask layer 3 (Tanabe at Figure 1; col. 7, lines 34-54). Owing to the recessed parts 3b in the upper face side of the mask layer 3, the GaN layer 4 is allegedly grown so as to form an approximately parallel gap 3c (e.g., void) between the bottom face of the GaN layer 4 and the mask layer 3.

However, Applicant submits that Tanabe does not teach or suggest "*wherein at least part of a sidewall of the ELO mask comprises an inclined plane that is inclined to the crystal growth surface such that the semiconductor crystal to be formed on the ELO mask substantially has no void*", as recited, for example, in claim 1.

As noted above, unlike conventional light-emitting elements in which voids and dislocations are typically formed in a semiconductor crystal layer formed on the ELO mask, in the claimed invention, at least part of a sidewall of the ELO mask includes an inclined plane that is inclined to the crystal growth surface of the semiconductor crystal (Application at Figures 2A-2B). This helps to inhibit (e.g., prevent) the formation of voids in the semiconductor crystal which is formed on the ELO mask (Application at page 9, line 4-page 5, line 2).

Clearly, this feature is not taught or suggested by Tanabe. Indeed, Applicant would point out that in complete contrast to the claimed invention, the objective of Tanabe is not to inhibit void formation, but only to control the shape of the void. Specifically, Tanabe seeks to create a gap 3c (e.g., void) between the GaN layer 4 and the mask layer 3. The gap 3c is intended to have a shape which is parallel to the mask layer.

Indeed, referring to the prior art device in Figure 11, Tanabe states that a void 46 is typically formed in the center part of the mask where the GaN layer 4 is joined during growth of the GaN layer 4 (Tanabe at col. 2, lines 21-36). Tanabe addresses this problem by using the recessed parts 3b in the mask layer 3 to prevent contact stress from affecting the growth of the GaN layer 4 in a lateral direction (Tanabe at col. 8, lines 61-65). However, this results

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in the formation of a gap 3c (e.g., void) between the recessed parts 3b and the GaN layer (Tanabe at Figure 1).

This is completely different from the claimed invention which may inhibit the formation of a void in a semiconductor crystal layer (e.g., see Application at Figure 6c). Indeed, the claimed invention does not necessarily control a shape of a void in the semiconductor crystal layer, but may help to inhibit formation of such voids (e.g., inhibit formation of a void between the mask layer and the semiconductor crystal layer).

Referring to Figure 3, the Application explains that in the claimed invention, the semiconductor crystal may be laterally grown close to and along the inclined plane even while the crystal growth surface of the semiconductor crystal moves upward from the crystal growth substrate, which may help to inhibit (e.g., prevent) the formation of voids (e.g., a void between the mask layer and the semiconductor crystal layer (Application at page 9, lines 10-14). Nowhere is this taught or suggested by Tanabe.

Therefore, Applicant submits that there are elements of the claimed invention that are not taught or suggest by Tanabe. Therefore, the Examiner is respectfully requested to withdraw this rejection.

III. FORMAL MATTERS AND CONCLUSION

In view of the foregoing, Applicant submits that claims 1-8 and 17-28, all the claims presently pending in the application, are patentably distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.


Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

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The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0481.

Respectfully Submitted,


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CERTIFICATION OF FACSIMILE TRANSMISSION

I hereby certify that the foregoing Amendment was filed by facsimile with the United States Patent and Trademark Office, Examiner Douglas M. Menz, Group Art Unit 2891 at fax number 571-272-8300 this 30th day of January, 2006.


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